

We claim:

1 31. A broadband Internet Protocol (IP) based network, comprising:

2 at least one customer coupled to the network for receiving IP services;

3 means for generating a DHCP message in a customer request for IP services with

4 a selected Internet Services Provider (ISP);

5 server means for receiving the request and DHCP message and generating an

6 extended DHCP request; and

7 means for receiving and routing the customer request and extended DHCP request

8 to the selected ISP for providing IP services to the customer via the selected ISP

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10 17. The broadband network of Claim 1 further comprising:

11 modem means for coupling the customer to the network; and

12 means for generating a unique customer address as part of the DHCP request.

13 18. The broadband network of Claim 1 further comprising:

14 means coupled to the server means for storing customer address information.

15 19. The broadband network of Claim 1 further comprising:

16 means for mapping the unique customer address to DHCP request.

17 20. The broadband network of Claim 1 further comprising:

18 routing means coupled to the server and a network serving a plurality of ISP.

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1 6. A broadband multi service proxy server, comprising:

2 means coupling the server to a broadband IP based network serving a plurality of
3 customers;

4 means coupling the server to an IP network via at least one Internet Service
5 Providers (ISP) in a plurality of ISPs;

6 means for generating a customer request including a DHCP message for access to
7 the IP network; and

8 means for generating an extended DHCP message format in the server enabling a
9 customer to access an ISP of choice for IP network services.

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11 7. The server of Claim 6 further comprising:

12 means for generating a unique address for a customer and storing the address in
13 the server as an origination source for a customer request.

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15 8. The server of Claim 6 further comprising:

16 means for pre-registering a customer for IP service with an ISP prior to
17 generating a customer request ;

18 means for sending the server a customer ID and password for customers
19 registered by the ISP.

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21 9. The server of Claim 6 further comprising:

2 means for sending a DHCP and unique customer address in a customer request for
3 access to the IP network;

4 means for receiving the customer request and storing the unique customer address
5 in a database coupled to the server.

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1 10. The server of Claim 6 further comprising:

2 means for sending the server an extended DHCP response and customer assigned
3 address for customer requests validated by the ISP.

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5 11. The server of Claim 6 further comprising:

6 server means for mapping validated customer requests to a unique customer
7 address; and

8 server means emulating the ISP and sending the customer a DHCP response to the
9 customer request.

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1 12. The server of Claim 6 further comprising:

2 means for validating a customer request for access to the IP network at an ISP of
3 customer choice.

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1 13. In a broadband IP based network including server means coupled to the network and to a
2 plurality of ISPs via a switching means, a method of providing IP services to network customers
3 via ISP of their choice, comprising the steps of:
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5 generating a request by a customer including a DHCP message for IP services
6 from a selected ISP;

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8 sending the request and DHCP message to the server for processing to determine
9 if the customer is approved by the network for receiving IP services;

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11 sending the request and an extended DHCP message for IP service to the selected
12 ISP;

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14 and

15 returning the extended DHCP message to the server and updating tables in the
16 switching means to provide the customer with IP services directly from the selected ISP.

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18 14. The method of Claim 13 further comprising the step of:

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20 mapping the DHCP message to the customer at a unique network address.

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22 15. The method of Claim 13 further comprising the step of:

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24 emulating the ISP by the server means and sending a DHCP reply to the customer
25 followed by updating the switching means to allow the customer to access the ISP of its choice.

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27 16. The method of Claim 13 further comprising the step of:

2 checking the extended DHCP message by the ISP to determine if the customer is
3 approved to receive IP services.
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1 17. The method of Claim 13 further comprising the step of:

2 notifying the server when the ISP determines the customer is not approved to
3 receive IP services.
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1 18. The method of Claim 13 further comprising the step of:

2 sending the server a customer ID and password for customers registered by the
3 ISP.
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1 19. The method of Claim 13 further comprising the step of:

2 sending the server an extended DHCP response and customer assigned address for
3 customer requests validated by the ISP.
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1 20. The method of Claim 14 wherein the unique customer address is a MAC address.